



Rediscovery of Vanzolini's Bald-Faced Saki, *Pithecia vanzolinii* HersHKovitz, 1987 (Primates, Pitheciidae): first record since 1956

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Abstract: We report the rediscovery of *Pithecia vanzolinii* in the upper Juruá River Basin, in the State of Acre, Brazil. An individual was collected after being hunted by a local inhabitant of an extractive community in the Riozinho da Liberdade Extractive Reserve. This is the first record of this species in the last 60 years and highlights the importance of intensifying studies of this almost unknown species.

Keywords: subsistence hunting; Pitheciinae; extractive reserve; Acre

Vanzolini's Bald-Faced Saki, *Pithecia vanzolinii* HersHKovitz, 1987, is a little-known primate species which is poorly represented in scientific collections worldwide. To our knowledge, there are only 37 specimens of *P. vanzolinii* preserved in four collections: Swedish Museum of Natural History, Stockholm, Sweden (NHR, 7 specimens), Museu Paraense Emílio Goeldi, Pará, Brazil (MPEG, 2 specimen), Museu Nacional do Rio de Janeiro, Rio de Janeiro, Brazil (MNRJ, 2), and Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP, 26 specimens).

The taxonomic history of Vanzolini's Bald-faced Saki began when Lönnberg (1938) erroneously considered the populations of *Pithecia* from the right bank of Lago Grande, Juruá River, and Santo Antônio, Eirú River, state of Amazonas — all localities within the distribution of *P. vanzolinii* — as *Pithecia monachus hirsuta* of Spix (1823). Likewise, HERSHKOVITZ (1979) included in his concept of *Pithecia hirsuta* specimens from Santa Cruz, Eirú River. DE VIVO (1985) was the first to notice that the specimens from Santo Antônio and Santa Cruz exhibited a different phenotype from Spix's *Pithecia hirsuta*. Taking into account DE VIVO's (1985) observation, HERSHKOVITZ (1987) reconsidered his previous position about *P. hirsuta* populations from the Brazilian states of Acre and Amazonas and recognized these specimens as a new subspecies, *Pithecia irrorata vanzolinii*. The holotype designated by HERSHKOVITZ (1987) (MZUSP 5491) is an adult male collected by Alfonso M.

Olalla in 1936 during the expedition to the Upper Juruá River (state of Amazonas), which included portions of the Purus River drainage. This expedition was financed by the Swedish Count Nils Gyldenstolpe (OLALLA 1937; GYLDENSTOLPE 1941; PATTERSON 1992). These specimens collected by A. M. Olalla in 1936 were sold to the NHR, the MNRJ and the MZUSP. For the original description of this taxon, HERSHKOVITZ (1987) also reviewed and used material collected by the ornithologist Fernando da Costa Novaes and the taxidermist M. M. Moreira from June to September of 1956, in a joint expedition of the MPEG, the Departamento de Produção Mineral and the American Museum of Natural History. These two researchers traveled along the Purus River between Cruzeiro do Sul and the Brazil/Peru border collecting birds and several species of primates. Two specimens of *Pithecia* were collected by Novaes' expedition and sent to the MPEG, where they are deposited under the voucher numbers MPEG 752, 851.

This subspecies was elevated to full species by MARSH (2014), who argued that there are no other sakis that closely resemble it. MARSH (2014) also stated that she had not seen a living specimen of *P. vanzolinii* in captivity, in the wild, or in photographs. Therefore, in the absence of new records after Novaes and Moreira's collection, *Pithecia vanzolinii* has not been recorded in the wild in the past 60 years.

Moreover, the natural history and the conservation status of *Pithecia vanzolinii* are completely unknown. According to the Brazilian List of Endangered Species, *Pithecia vanzolinii* has a relatively broad distribution and no obvious threats, and for this reason is listed as Least Concern (LC) (RAVETTA & MARTINS 2015). On the other hand, this species is listed as Data Deficient (DD) by the IUCN, based on its poorly defined range and lack of knowledge about its demography and potential threats (MARSH & VEIGA 2015).

Based on recent material, we report the first record of *Pithecia vanzolinii* since 1956, morphologically compare it

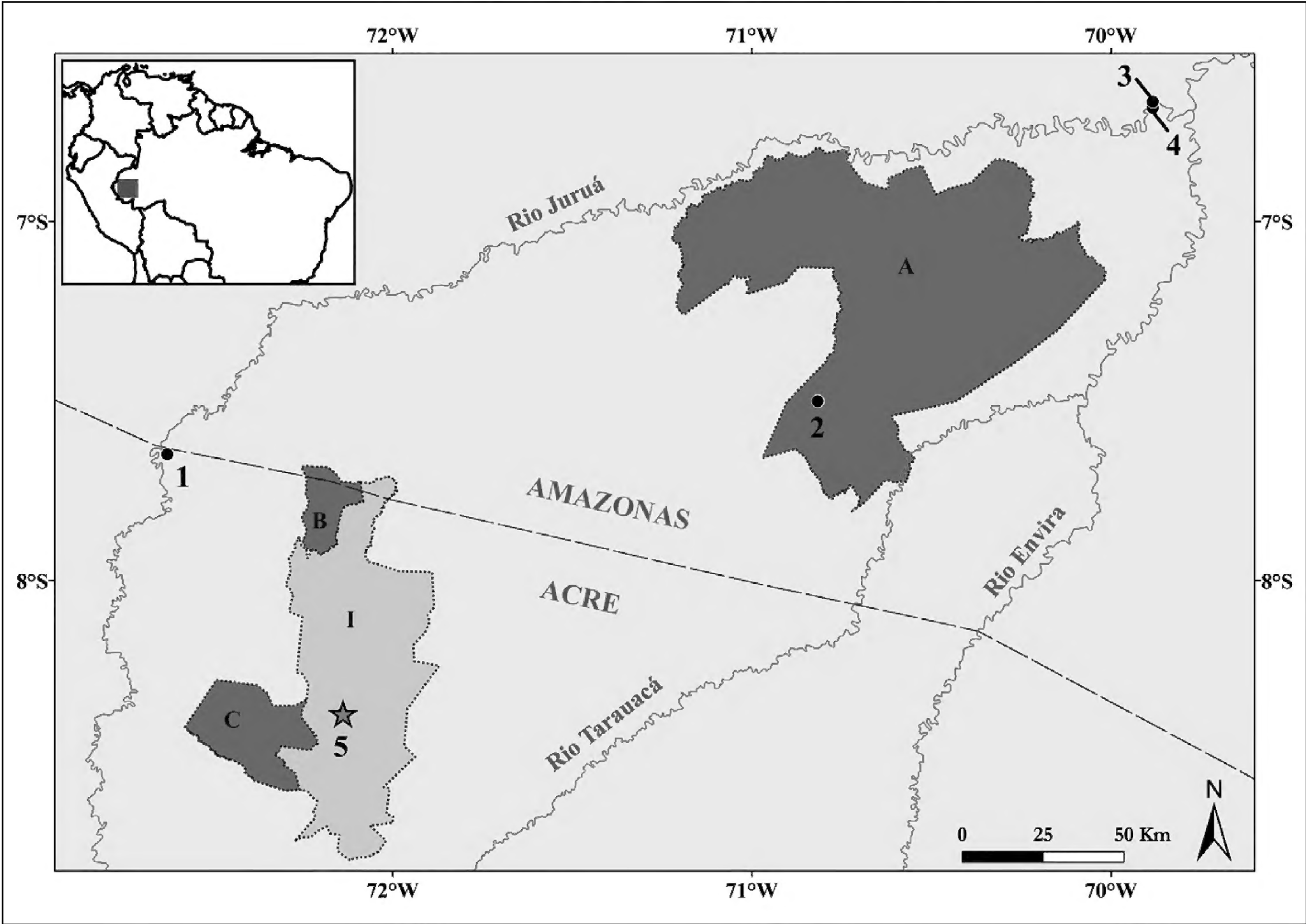


Figure 1. Map with the historical records of *Pithecia vanzolinii* (dots) and our new record (star). I. Riozinho da Liberdade Extractive Reserve. Indigenous communities: A) Kulina do Médio Juruá, B) Campinas/Katutina, and C) Arara do Igarapé Humaitá. For locality data see Table 1.

to the holotype, and comment on the species distribution and observed potential threats in the study area.

During a field expedition in the Riozinho da Liberdade Extractive Reserve, a specimen (MZUSP 35693, skull and tissue) of *Pithecia vanzolinii* was registered occasionally on 25 November 2016. The specimen was hunted in the traditional community Passo da Pátria in Acre, Brazil (08°22'14.50" S, 072°08'19.22" W) (Figure 1), which is one of the 27 communities (350 families) distributed over 325,000 ha of lowland rainforest (Ombrophilous Open Forest). The reserve is located in the Upper Juruá river basin, in the state of Acre and southwestern Amazonas. It comprises four municipalities: Cruzeiro do Sul, Marechal Thaumaturgo, Porto Walter, and Tarauacá. This region is composed of traditional communities, small plantations, extractivism, hunting, and fishing. The specimen was

obtained during an ongoing doctoral field study, carried out by the first author, and all necessary permits for the collection of specimens were granted by the Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio), Ministry of the Environment (Process No. 49548-2).

The adult male MZUSP 35693 has the characters of *Pithecia vanzolinii* described by HERSHKOVITZ (1987), i.e., general coloration black with contrasting yellow upper and lower limbs; the individual hairs black with fine buff or ochre subterminal bands; frontal region black, and cheeks with buff malar stripes (Figure 2). By the time of collection, the specimen's hands and feet had already been removed and separated from the body and, after photographing (Figure 3), were eventually lost. The specimen was also directly compared with the holotype and 24 other specimens in the MZUSP (see Appendix). The skull measurements fell

Table 1. Summary of the localities of *Pithecia vanzolinii*. The locality numbers refer to the points shown in Figure 1.

| Locality no. | Locality | Latitude | Longitude | Source |
|--------------|---|----------------|-----------------|---------------------------|
| 1 | Cruzeiro do Sul, Acre, Brazil | 07°37' S | 072°36' W | Herskovitz (1987) |
| 2 | Eirú River, Santa Cruz, Amazonas, Brazil (type locality of <i>Pithecia vanzolinii</i>) | 07°23' S | 070°47' W | Herskovitz (1987) |
| 3 | Eirú River, Lago Grande, Amazonas, Brazil | 06°41' S | 069°53' W | Herskovitz (1987) |
| 4 | Eirú River, Santo Antônio, Amazonas, Brazil | 06°42' S | 069°52' W | Herskovitz (1987) |
| 5 | Community Passo da Pátria, Riozinho da Liberdade Extractive Reserve, Acre, Brazil | 08°22'14.45" S | 072°08'19.22" W | This study MZUSP 35693 |

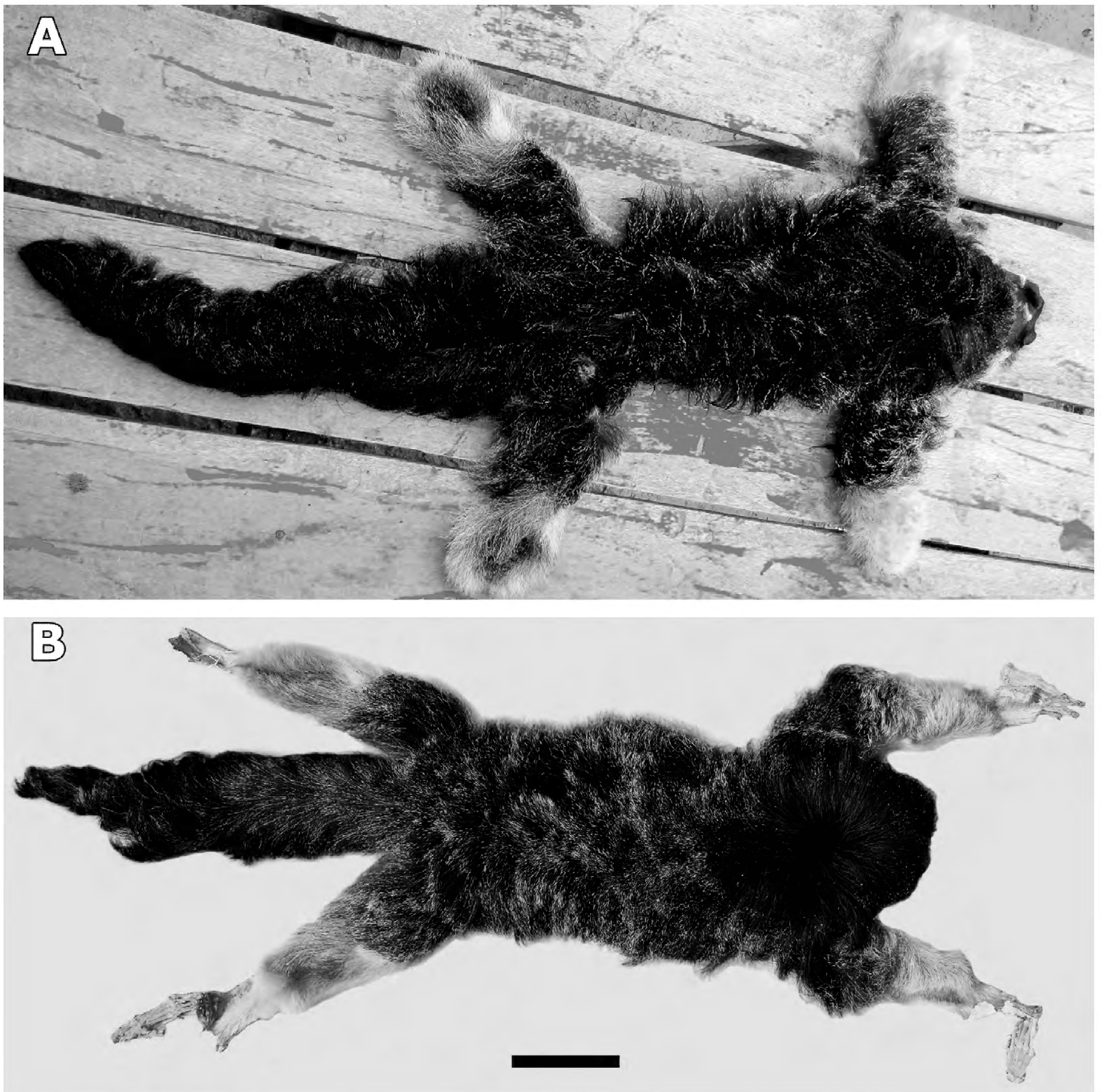


Figure 2. *Pithecia vanzolinii*. **A.** Dorsal view of adult male (MZUSP 35693) collected in Riozinho da Liberdade Extractive Reserve, Acre, Brazil. **B.** Holotype (MZUSP 5491; adult male, Eirú River, Santa Cruz, Amazonas, Brazil).

within the known range for the species (Figure 4; Table 2).

This new record represents the southernmost known locality record for the species and extends the known range of *Pithecia vanzolinii* approximately 100 km to the southeast. This record falls within the putative distribution suggested by HERSHKOVITZ (1987), located between the south bank of Juruá River and the south bank of its tributary, the Tarauacá River in southwestern Amazonas and Acre (Figure 1).

As far as is known, the species' area of occurrence is sparsely populated, although five settlement programs exist, as well as eight sustainable-use protected areas: two extractive reserves (Alto Tarauacá and Alto Juruá, Acre),

two state forests (Mogno and the Rio Liberdade, Acre), and four indigenous reserves of the Katukina, Shawandawa, Ashaninka, Jaminawa, Arara, and Yawanawa ethnic groups. This scenario suggests a delicate situation, especially given the high deforestation rate in Acre, which has the second-highest rate of deforestation within Brazilian Amazonia (INPE 2016), and because *Pithecia vanzolinii* is subject to hunting pressure, as other primate species that are commonly hunted in the Brazilian Amazon (PERES 1990; CONSTANTINO 2016). This situation indicates potential threats to *Pithecia vanzolinii* populations and highlights the urgency of ecological studies and conservation initiatives directed towards the species.

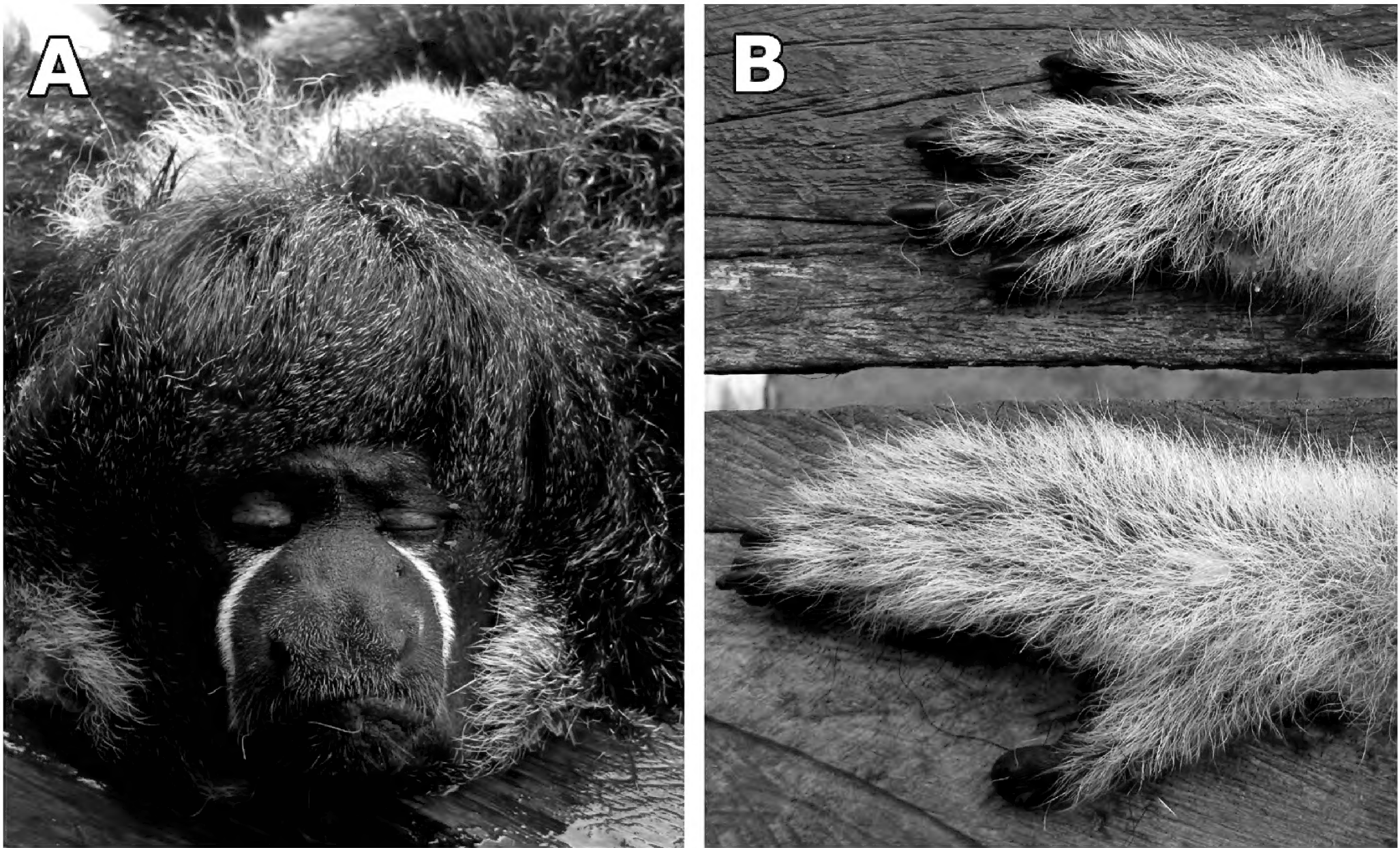


Figure 3. Specimen of *Pithecia vanzolinii* (MZUSP 35693) collected in Riozinho da Liberdade Extractive Reserve, Acre, Brazil. **A.** Face in detail. **B.** Left hand and right foot.

Table 2. Summary of male and female cranial and dental measurements (mm) of our specimen compared with male and female specimens of *Pithecia vanzolinii* from the MZUSP (see Appendix for specimen details). All measurements are mean \pm standard deviation

| Measurements (mm) | MZUSP 35693 ♂ (new record) | MZUSP 5491 ♂ (Holotype) | <i>Pithecia vanzolinii</i> ♂ (n = 9) | <i>Pithecia vanzolinii</i> ♀ (n = 12) |
|---------------------------------|-------------------------------|----------------------------|---|--|
| Greatest Skull length | 86.13 | 86.18 | 81.93 (\pm 2.94) | 81.04 (\pm 2.52) |
| Condylobasal length | 64.73 | 64.88 | 61.93 (\pm 2.88) | 61.14 (\pm 3.49) |
| Zygomatic breadth | 58.45 | 57.12 | 54.38 (\pm 3.04) | 54.41 (\pm 3.31) |
| Biorbital breadth | 45.35 | 44.89 | 42.88 (\pm 2.4) | 42.54 (\pm 2.38) |
| Postorbital constriction | 34.49 | 32.66 | 35.9 (\pm 2) | 36.11 (\pm 1.48) |
| Braincase length | 62.69 | 62.74 | 56.21 (\pm 2.54) | 56.12(\pm 1.91) |
| Braincase width | 45.78 | 41.96 | 43.44 (\pm 1.27) | 44.24 (\pm 1.81) |
| Nasal length (medial) | 17.98 | 19.17 | 16.73 (\pm 1.32) | 16.22(\pm 1.41) |
| Nasal length (greatest) | 20.25 | 21.2 | 18.42 (\pm 1.4) | 18.45 (\pm 1.70) |
| Interorbital width | 5.48 | 6.67 | 6.46 (\pm 0.62) | 6.54 (\pm 0.82) |
| I-M ³ | 30.47 | 32.95 | 30.34 (\pm 1.15) | 30.17 (\pm 1.23) |
| C-M ³ | 24.19 | 23.62 | 24.13 (\pm 1.11) | 23.67 (\pm 1.01) |
| PM ² -M ³ | 15.54 | 16.18 | 18.31 (\pm 0.85) | 18.42 (\pm 0.52) |
| M ¹ -M ³ | 9.98 | 10.46 | 9.91 (\pm 0.41) | 10.38 (\pm 0.31) |
| I ² -I ² | 12.47 | 11.88 | 12.13 (\pm 0.66) | 11.89(\pm 0.73) |
| C ¹ -C ¹ | 25.41 | 25.38 | 24.85 (\pm 1.43) | 23.79 (\pm 1.73) |
| M ¹ -M ¹ | 23.88 | 23.43 | 22.93 (\pm 1.04) | 23.16 (\pm 1.19) |
| M ³ -M ³ | 22.39 | 21.69 | 19.7 (\pm 6.4) | 21.47 (\pm 6.80) |
| Canine Length (from cingulum) | 11.85 | 11.96 | 11.46 (\pm 0.96) | 10.27 (\pm 1.18) |
| Mandible length | 56.48 | 57.71 | 54.95 (\pm 2.71) | 54.36 (\pm 3.65) |
| Mandible height | 42.54 | 43.72 | 36.92 (\pm 3.18) | 36.10 (\pm 3.49) |

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Figure 4. Dorsal, ventral and lateral views of skull and lateral view of mandible of *Pithecia vanzolinii* (MZUSP 35693).

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APPENDIX

Specimens examined

Pithecia vanzolinii ($n = 26$). **Acre:** Community Passo da Pátria, Riozinho da Liberdade Extractive Reserve: MZUSP 35693. **Amazonas:** Santa Cruz, Rio Eirú: MZUSP 5491 (holotype of *Pithecia vanzolinii*), MZUSP 4160, MZUSP 4161, MZUSP 4162, MZUSP 4980, MZUSP 4981, MZUSP 4982, MZUSP 4984, MZUSP 4985, MZUSP 4986, MZUSP 4987, MZUSP 5484, MZUSP 5485, MZUSP 5486, MZUSP 5487, MZUSP 5488, MZUSP 5489, MZUSP 5490, MZUSP 5492, MZUSP 5493, MZUSP 5494, MZUSP 5495, MZUSP 19684, MZUSP 19694, MZUSP 19695.